

US 20150003422A1

(19) United States

(12) Patent Application Publication Jin et al.

(10) **Pub. No.: US 2015/0003422 A1**(43) **Pub. Date:**Jan. 1, 2015

(54) PROBING DATA

(75) Inventors: **Zhong-Yi Jin**, Albany, CA (US); **Klaus Franz Doppler**, Albany, CA (US)

(73) Assignee: Nokia Corporation, Espoo (FI)

(21) Appl. No.: 14/344,668

(22) PCT Filed: **Sep. 16, 2011**

(86) PCT No.: **PCT/US2011/051948**

§ 371 (c)(1),

(2), (4) Date: Mar. 13, 2014

Publication Classification

(51) **Int. Cl.**

 H04L 5/02
 (2006.01)

 H04L 27/26
 (2006.01)

 H04W 72/04
 (2006.01)

(52) U.S. Cl.

CPC *H04L 5/026* (2013.01); *H04W 72/042* (2013.01); *H04L 27/2601* (2013.01)

(57) ABSTRACT

According to an example embodiment, a method may include sending, by an apparatus, a probe requesting for nodes with queued data to acknowledge the probe, receiving, by the apparatus, multiple acknowledgments from the nodes, the multiple acknowledgments overlapping at least partially in time and frequency, determining, by the apparatus, which nodes acknowledged the probe by decoding the multiple acknowledgments according to a code division multiple acknowledgments according to a code division multiple access scheme, sending, by the apparatus, an allocation to the nodes that acknowledged the probe, the allocation allocating spectral resources for the nodes to send the queued data, and receiving, by the apparatus, the queued data from the nodes that acknowledged the probe.

